Section 9.2 Notes Day 2

Law of Sines

Fact or Myth:

1. During a race, runners run a triangular path. The first leg of the race is 3 miles long. Once the runners reach the first water station they turn 133⁰ and travel straight to the next water station. Once they reach the next water station, the runners turn 73⁰ and run straight back to the start. The first runner to finish the race breaks the course record, finishing in the time 36.5 minutes. If the fastest mile ever run was 3 minutes and 43 seconds, is it possible that the first runner could have completed the course in 36.5 minutes?

3 mi.

73⁰

133⁰

1. A plane disappeared in a mountain range one foggy evening. Villagers claim that the plane hit Mount Mystery; however, when the plane radioed for help prior to the disappearance, the pilot claimed they were flying at a height of 2,153 meters. You and your team wondered if it was possible that the plane hit Mount Mystery and sent two *Mythbusters* to collect data at the base of the mountain. The two *Mythbusters* stood 900 meters apart and both were about 2 meters tall. The first *Mythbuster* could see the top of the mountain at an angle of elevation of 47⁰ and the second *Mythbuster* could see the top of the mountain at an angle of elevation of 35⁰. If the pilot’s statement on the plane’s height was correct, could it have been possible for the plane to have crashed into the mountain? (***Hint****: Find the height of the mountain.)*

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| C:\Users\Emily\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\2E50L80P\MC900389360[1].wmf  900 m.  2 m.  47⁰  35⁰  900 m.  2 m.  47⁰  35⁰ |

1. In the *Count of Monte Cristo* by Alexander Dumas, the count attempts to dig a tunnel to escape from prison. Inspired by this tale, a man claims he escaped from prison by digging a tunnel. According to his explanation, he dug a hole with an angle of depression of 30⁰. Once he was deep enough, he changed direction, rotating upwards 70⁰, and dug a tunnel upwards for about 500 ft. In order to pass underneath the prison fence, he needed to travel at least 600 feet to freedom. Based on his description, would his tunnel allow him to escape?

30⁰

70⁰

500 ft

1. There were two *Mythbusters* on opposite sides of a bridge watching a man bungee jump. The locals say that the jump is at least 400 ft. The bridge is 300 feet long. The *Mythbuster* on the one side of the bridge is looking at the bungee jumper at an angle of depression of 63⁰ and the other *Mythbuster* is looking at the bungee jumper at an angle of depression of 75⁰. Are the locals correct that the jump is at least 400 ft or is it just a local myth?

63⁰

75⁰

300ft